Amendments to the Drawings

Please substitute the accompanying replacement drawing sheets 1 to 11 for the drawings presently on file. These drawing sheets are copies of the replacement sheets that were submitted under Rule 26 and accepted in the International Application PCT/FR2004/001662 and include English language legends.

REMARKS

35 U.S.C. 101

In response to point 10 of the detailed action, applicant has cancelled the original "use" claim 1 and has presented the subject matter in a more acceptable form under United States practice as new claim 9, directed to a method to partially or fully activate cystic fibrosis transmembrane conductance regulator channels (CFTR) in cell membranes of a mammal in need of such treatment using at least one linear n-alkanol selected from the group consisting of C_6-C_{10} and mixtures thereof.

Support for these amended claims can be found throughout the current application as filed and in particular in the abstract where it is stated the invention relates to the application of n-alkanols to treatments of pathologies in which dysfunction of said CFTR channel can be observed. Support is also found at page 3 paragraphs 30 and 31 of the published application.

With reference to the examiner's objection that the previous use claims did not provide a proper definition of a process, the newly submitted method claims overcome this problem by clearly and unambiguously setting out the steps proposed by the applicants for partially or fully opening CFTR channels in the cell membranes of a mammal in need of such treatment using at least one linear n-alkanol selected from the group consisting of C_6-C_{10} and mixtures thereof.

In particular, it is specified that according to this claimed method at least one linear n-alkanol selected from the group consisting of C_6-C_{10} and mixtures thereof is administered in an amount sufficient to generate in the vicinity of the mammalian cell membranes a concentration of the n-alkanol sufficient to partially or fully open the CFTR in these cell membranes.

The means to determine what is a sufficient amount to elicit the desired effect are provided in the current patent application, for instance at page 7 paragraphs 105-108 of the published application wherein detailed methods are provided to determine the effects of different linear n-alkanols and concentrations thereof upon the CFTR of Human Bronchial Epithelial Cells or Epithelial Cells of Pulmonary Origin comprising the ΔF508 mutant CFTR. Therefore the objection under 35 U.S.C. 101 at point 10 of the detailed action, is no longer relevant and it is requested this be withdrawn.

35 U.S.C. 112

The claims of the current application have been amended to overcome the indefiniteness objections raised by the examiner in the detailed action.

Further to point 6 of the detailed action, the parentheses of claim 2 have been deleted and claim 9 now relates to linear n-alkanols. Therefore the compounds within the scope of amended claim 2 are now unambiguously defined as being only linear n-alkanols with an OH group at the 1-position or the 2-position. Therefore the objection under 35 U.S.C. 112 at point 6 of the detailed action is no longer relevant and it is requested this be withdrawn.

Further to point 7 of the detailed action, the feature between 0.001% and 0.1% (v/v), corresponding to a value of' has been removed from claim 8. Therefore the objection. under 35 U.S.C. 112 at point 7 of the detailed action, is no longer relevant and it is requested this be withdrawn.

Further to point 8 and 9 of the detailed action, the claims have been restricted to claim linear n-alkanols only. Therefore any possible ambiguities concerning whether the C_6-C_{10} feature of the old claims referred to the longest n-alkanol chain or the total number of carbons in the molecule are no longer present. Therefore the objection under 35 U.S.C. 112 at point 8 of the detailed action, is no longer relevant and it is requested this be withdrawn.

Further to point 12 of the detailed action, the claims have been restricted to claim linear n-alkanols only. Since the examiner acknowledges that the specification is enabling for the use of linear C_6-C_{10} alcohols for the activation of CFTR, these claims as amended are fully enabled by the present application. Therefore the objection under 35 U.S.C. 112 at point 12 is no longer relevant and it is requested this be withdrawn.

35 U.S.C. 102

Further to point 14 of the detailed action, in which it was alleged Llinas et al., taught compositions which anticipated old claims 1-2 and 4-8 of the current application. Llinas et al., relates to a method for blocking calcium channels using an aliphatic alcohol.

The claims as now presented claim a method of partially or fully activating CFTR channels present in the cell membranes of a mammal in need of such treatment using C_6-C_{10} n-alkanols. Such a method is not taught or discussed by Llinas et al., and therefore these claims as amended are novel with respect to this prior art disclosure.

It is submitted that such methods are not obvious with respect to Llinas et al., as Llinas et al., teaches a composition comprising C_6-C_{10} n-alkanols and its use for blocking or reducing the activity of low threshold calcium channels in mammalian cells, namely neurones (col. 5 ln. 33-43). The current invention relates to a method of using C_6-C_{10} n-alkanols to effect the partial or complete activation of CFTR and therefore concerns the elicitation of the exact opposite effect to that taught by Llinas et al., on a receptor not mentioned in Llinas et al.

There is no way that a skilled worker in the field could, starting with the disclosure of Llinnas et al., arrive at the method now claimed without the need for extensive further experimentation and the application of a significant amount of inventive skill. Therefore the objection under 35 U.S.C. 102 at point 14 of the detailed action, is no longer relevant and it is requested this be withdrawn.

Further to point 15 of the detailed action, in which it was alleged Mak et al., taught compositions which anticipated old claims 1-2 and 5-7 of the current application, we note that Mak et al., relates to transdermal and topical drug delivery technology.

As outlined above, the claims have been amended so as to now claim a method of partially or fully activating CFTR channels present in the cell membranes of a mammal in need of such treatment using C_6-C_{10} n-alkanols. Such a method is not taught or discussed by Mak et al., and therefore these claims as amended are novel with respect to this prior art disclosure.

The claimed method is also not obvious with respect to Mak et al., as Mak et al., teaches a composition comprising certain alcohols which are configured to enhance to the transdemial and topical penetration of these alcohols as well as drugs and other substances present in the composition (abstract). The current invention relates to an entirely dissimilar technical problem and provides in the claims as now amended a method of using C_6-C_{10} n-alkanols to effect the partial or complete activation of CFTR and therefore the compositions and methods taught by Mak et al., do not render obvious any aspect of the new claims of the current application.

The skilled worker, starting with the disclosure of Mak et al., would not arrive at the method now claimed without the need for extensive further experimentation and inventive skill and such a worker would also have no motivation at all to do so starting from Mak et al., given this prior art disclosure relates to a different technical problem. Therefore the objection under 35 U.S.C. 102 at point 16 of the detailed action, is no longer relevant and it is requested this be withdrawn.

Further to point 16 of the detailed action, it was alleged that Delli Santi et al. taught compositions containing cyclic hydrocarbon alcohols such as menthol which anticipated old claims 1-2 and 5-7 of the current invention. Delli Santi et al. relates to an oral rinse, dentifrice or gel composition comprising among other ingredients, menthol.

As outlined above, the claims have been amended and are now directed to a method of partially or fully activating CFTR channels present in the cell membranes of a mammal in need of such treatment using linear C_6-C_{10} n-alkanols. Therefore the method defined by the new claims is not taught or discussed by Deli Santi at al. and therefore these new claims as amended are novel with respect to this prior art disclosure.

Further, the claimed method is not obvious with respect to Deli Santi et al., as Delli Santi et al. teaches a composition comprising certain cyclic hydrocarbon alcohols for use as dental compositions such as dental rinses (abstract). The current invention relates to an entirely dissimilar technical problem and provides a method of using linear C_6-C_{10} n-alkanols to effect the partial or complete activation of CFTR and therefore the compositions and methods taught by Delli Santi et al. do not render obvious any aspect of these new claims.

The person of skill in the art, starting with the disclosure of Delli Santi et al., would not arrive at the method now claimed by the current invention without the need for extensive further experimentation and inventive skill and such a worker would also have no motivation at all to do so starting from Delli Santi et al. given this prior art disclosure relates to a different technical problem. Therefore the objection under 35 U.S.C. 102 at point 16 of the detailed action, is no longer relevant and it is requested this be withdrawn.

Further to point 17 of the detailed action, it was alleged Likhodi et al. taught compositions containing alcohols such as 2-nonanol which anticipated old claims 1-2 and 4-7 of the current invention. Likhodi et al. relates to a method of treating neurological disorders such as epilepsy by administering an acetone derivative of the formula R_1-$CR^3(X)$-R_2.

As outlined above the claims have been amended to recite a method of partially or fully activating CFTR channels present in the cell membranes of a mammal in need of such treatment using linear C_6-C_{10} n-alkanols. Therefore the new claims of the current application to a method to use linear n-alkanol to effect the partial or complete activation of CFTR, are not taught or discussed by Likhodi et al. and therefore these new claims as amended are novel with respect to this prior art disclosure.

The subject matter of these new claims is not obvious with respect to Likhodi et al., as Likhodi et al. teaches a composition comprising certain acetone variants for use in the treatment of neurological disorders, namely epilepsy (abstract). The current invention relates to an entirely dissimilar technical problem and provides in amended claims 1-7 a method of using C_6-C_{10} n-alkanols to effect the partial or complete activation of CFTR and therefore the compositions and methods taught by Likhodi et al. can not render obvious any aspect of these new claims.

The applicants also submit that no combination of any of the above documents could render the subject matter as now claimed obvious, since none of these prior art disclosures describe or even hint at the efficacy of linear C_6-C_{10} n-alkanols in the partial or complete activation of CFTR so as to alleviate pathologies associated with this dysfunction of this receptor.

With regard to points 18 and 19 of the detailed action, in which Marcet et al. was considered as prior art to the current application, we point out that this article was published between the earliest priority date of the current application and the PCT filing date. FR0308064 is the priority basis for the current patent application. The applicants herewith submit a translation of FR0308064 in accordance with rule § 1.55 (a) (4) (b), together with a statement that the translation of the certified copy is accurate. This French National patent application was filed on July 03, 2003, several months before the online publication of Marcet et al. on February 16, 2004. From this translation it is clear that Marcet et al. is not prior art under 35 CFR 102(a) as FR0308064 corresponds to the current application. Therefore the invention now claimed was fully disclosed in FR0308064 and therefore has an effective filing date earlier than that of Marcet et al.

Conclusion

In conclusion, all the outstanding objections to the current patent application have been addressed and the applicants look forward to receiving notification of grant of this application in due course.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

Raymond O. Linker, Jr.
Registration No. 24,619

Customer No. 00826
Alston & Bird LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on January 17, 2008.

Judy S. Creel